below the surface
an indepth look at...

The Lower East Coast (LEC) Regional Water Supply Plan

A blueprint to meet future water needs

ON THE INSIDE

- How the LEC Plan ties in with CERP
- Options for storing excess water
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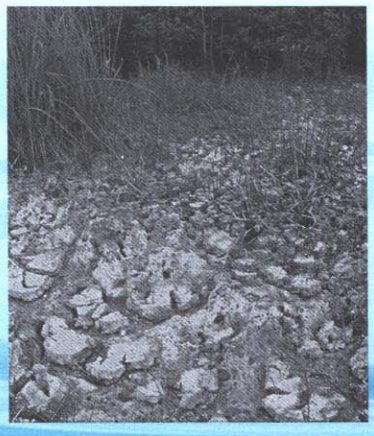
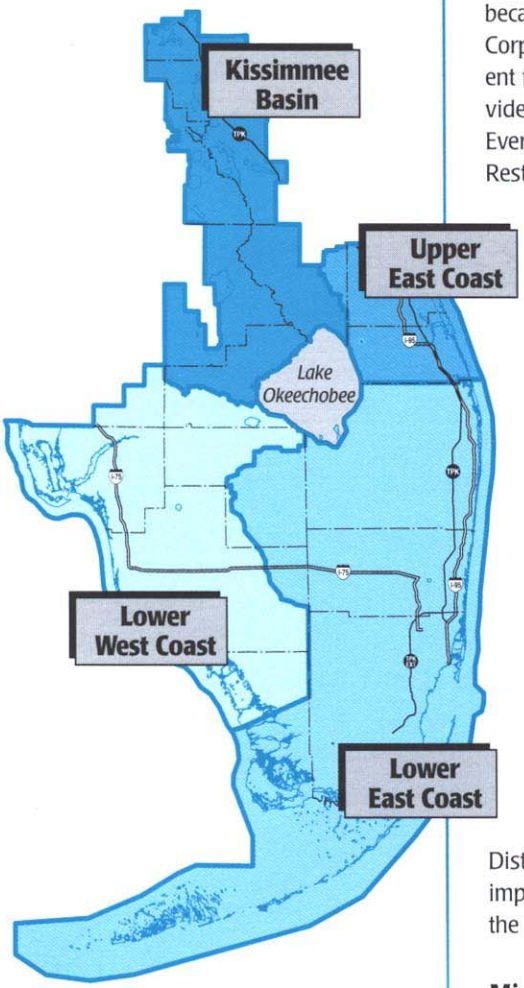
In 1992, the South Florida Water Management District, under authority of state law, began a ten-year study of water needs through the year 2020. Known as the Lower East Coast Regional Water Supply Plan, the Plan proposes $3 billion in water resource development projects over the next 20 years and gives guidance and support to local governments and other users to carry out these projects.



Over the next couple of decades, southern Florida's population is expected to swell from the current five million residents to seven million with most of them living along the coast. More water must be found to meet the demands of people, agriculture and the environment. Together, people and agriculture are expected to need an average of 2.52 billion gallons a day over the next 20 years. That's a 20 percent increase over today's use.

Southern Florida's unique climate of dry and wet seasons means that those of us who live here can't always count on enough rain to fall when and where it's needed. In the past, competition for water during periods of drought has

To identify future water resource problems for Southern Florida, four regional water supply plans have been developed by the South Florida Water Management District



led to water shortages. The South Florida Water Management District developed The Lower East Coast Regional Water Supply Plan and three other region-specific plans to develop projects designed to ensure adequate water supplies for the future.

Drought Protection

Major droughts over the years have highlighted the effects of competition for a shrinking water supply. Implementation of the LEC Plan should result in southern Florida's ability to meet reasonable water demands during an expected one-in-ten-year drought.

The Everglades Connection

The water supply planning efforts completed from 1992 to 1997 for the LEC Plan became the foundation for the U.S. Army Corps of Engineers' "Restudy" of the present flood control system. The LEC Plan provided a framework used to develop Everglades restoration goals/targets for the Restudy, now called the Comprehensive Everglades Restoration Plan (CERP). The LEC Plan's primary water resource development projects (see Storing Excess Water) will be completed as part of CERP.

A Coordinated Regional Approach

In addition to becoming part of CERP, the success of the LEC Plan is linked to three other District planning efforts: the Lower West Coast Water Supply Plan, the Caloosahatchee Water Management Plan, and the Kissimmee Basin Water Supply Plan. The LEC Plan looked at portions of the other planning areas as well. CERP will also address freshwater flows to Biscayne Bay, Everglades National Park, and Florida Bay. The District's Everglades Construction Project improves the quality of water flowing into the Everglades.

Minimum Flows and Levels Provide Water Protection

The establishment of Minimum Flows and Levels is required under state law to protect our water resources from significant harm as a result of further withdrawals.

Lake Okeechobee: Water levels within the lake would not go too low, too often to protect the ecosystem.

The Everglades: Specific criteria for dry periods would protect soils, aquatic plants and animals, and wetland communities.

Biscayne Aquifer: Underground freshwater would be protected from saltwater intrusion by maintaining water levels in the aquifer.

Water Reservations to Protect Fish and Wildlife

Along with the establishment of Minimum Flows and Levels, water reservations will be implemented to protect fish and wildlife crucial to Everglades Restoration over the next 20 years. Consensus on reserving water for fish and wildlife was reached by a broad group of federal, state and local entities including Everglades National Park. However, it was determined this must be further defined in the state rulemaking process.

Storing Excess Water

Water source options were identified in the LEC Plan and incorporated into CERP. These options either make additional water available from historically-used sources or other sources, or provide additional management through conservation and storage of water.

1. Conservation - The LEC Plan requires the District to develop a conservation program to supplement existing requirements as a condition of permitting. This applies to public water supply utilities, commercial/industrial users, landscape and golf course users, and agriculture.

2. Surficial Aquifer System - This aquifer system is the principle source of potable water within the LEC planning area. The LEC Plan addresses ways to protect this source from contamination and to provide recharge to the aquifer in dry times.

3. Floridan Aquifer System - This aquifer lies deep below southern Florida

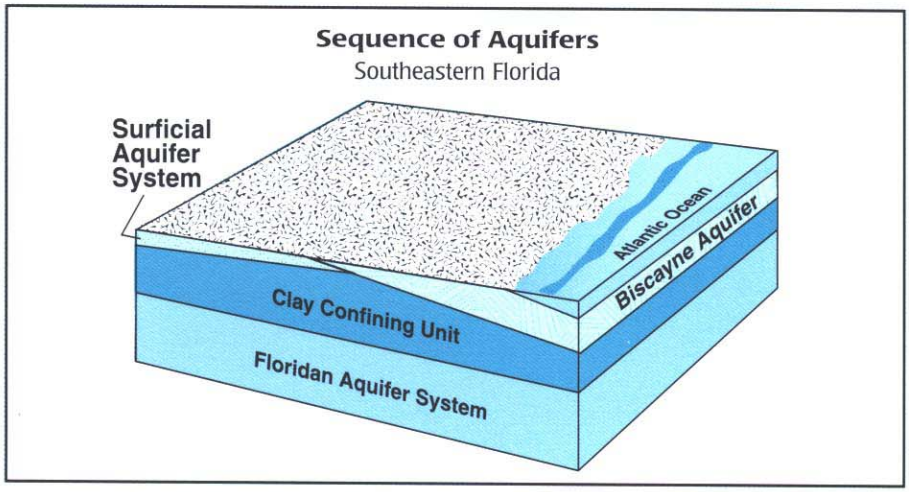
and requires special treatment to make the brackish water in its upper layer suitable for drinking.

4. Reservoirs/Surface Water - Key areas in CERP and the LEC Plan to store water in wet times.

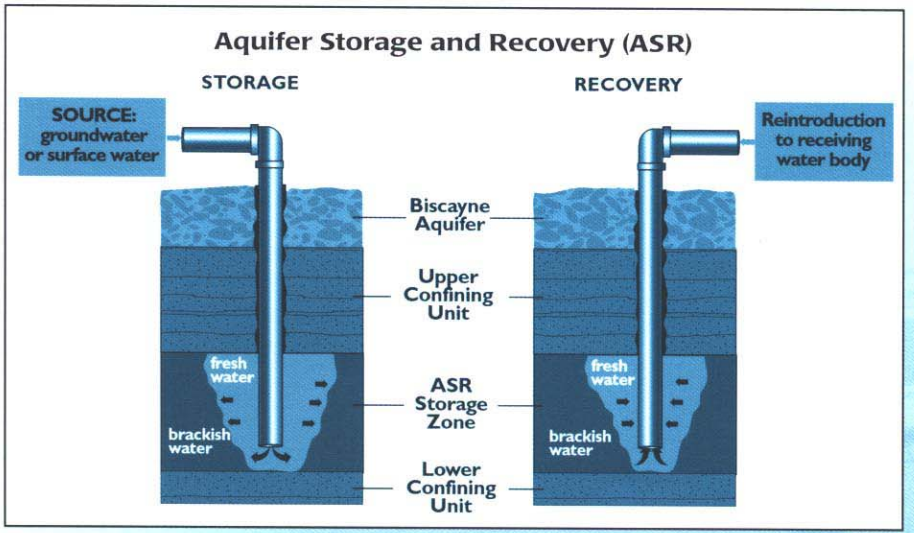
5. ASR Wells - This key storage technology allows water to be held underground and withdrawn when needed.

6. Reclaimed Water - Treated wastewater can be used for irrigation and other purposes taking demand off potable water for irrigation. Reclaimed water is also a potential source for canal recharge and indirect aquifer recharge.

7. Seawater - A study is under way to determine the viability of co-locating reverse osmosis treatment facilities with coastal electric plants to turn seawater into potable water. This could be a drought-proof source of drinking water.



The Biscayne Aquifer is a highly productive portion of the Surficial Aquifer System. It supplies drinking water for Miami-Dade, Broward and the southern portion of Palm Beach counties. The Biscayne Aquifer consists of highly permeable rock and is therefore susceptible to saltwater intrusion.



Aquifer Storage and Recovery (ASR) wells pump water nearly 1,000 feet below ground into the Floridan aquifer. It remains there until dry conditions warrant recovery. ASR is a major component of the LEC Plan and CERP. Pilot projects are under way to verify the feasibility of building more than 300 wells which could send as much as 1.6 billion gallons a day of excess water underground for storage.

Improved management of surface water through storage could increase fresh water availability in dry times to Lake Okeechobee, the Everglades, and the St. Lucie and Caloosahachtee estuaries. This also could reduce damaging fresh water flows in wet times.

Caloosahatchee River

Everglades

Lake Okeechobee

LEC Plan Highlights

• Creates a water supply plan that fully meets the future (2020) needs of nearly seven-million people, agriculture and industries during a one-in-ten year drought.

• Reduces the number and severity of violations of Minimum Flow and Levels (MFL) criteria for the Everglades, Lake Okeechobee, and the Biscayne aquifer by 2020.

• Proposes to reserve from allocation, sufficient water to allow for the restoration of the Everglades and enhancement of other significant natural systems through time.

LEC FROM START TO FINISH	
1990	Planning for Lower East Coast begins, timeline extends out to year 2010.
1992	SFWMD Governing Board creates 45-member advisory committee to help develop plan.
1994	New computer modeling tools are developed by SFWMD staff and used to simulate water resources.
1995-1996	Water supply options analyzed through computer modeling are studied by advisory committee and public. Florida legislature extends timeline for LEC Plan 20 years.
1997	SFWMD Governing Board approves "LEC Interim Plan."
1998	LEC water storage options become foundation of "Restudy."
1999	SFWMD/Army Corps of Engineers finish Restudy, now called Comprehensive Everglades Restoration Plan (CERP).
1999	Two Aquifer Storage and Recovery (ASR) pilot projects begin.
2000	SFWMD Governing Board approves final LEC Plan.
2000	U.S. Congress adopts CERP and authorizes initial set of projects.
2001	SFWMD begins full-scale implementation of non-CERP related water supply projects in the LEC Plan.

FOR LEC PLAN INFORMATION – Matthew J. Morrison (561) 682-2758
FOR ASR INFORMATION – Peter Kwiatkowski (561) 682-2547
FOR RECLAIMED WATER INFORMATION – Mark Elsner (561) 682-6156

More water supply plan information can be found under "major projects" at www.sfwmd.gov

The South Florida Water Management District *is a regional, governmental agency that oversees the water resources in the southern half of the state. It is the oldest and largest of the state's five water management districts.*

Our Mission is to manage and protect water resources of the region by balancing and improving water quality, flood control, natural systems, and water supply.

This "Below the Surface" publication on the LEC Plan directly supports our mission of water supply.

sfwmd.gov

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West Palm Beach, FL 33416-4680

DID YOU KNOW?

- *The LEC planning area covers 9,000 square miles and includes Miami-Dade, Broward, Palm Beach, most of Monroe, and parts of Lee, Collier, Hendry, Glades, Martin, and Okeechobee counties.*
- *In 1995, agriculture was the largest user of water from Lake Okeechobee. By 2020, the Everglades will become the largest user of lake water.*
- *Sugar, citrus and vegetables are the dominant agricultural crops in the LEC planning area.*
- *Citrus growers and nurseries that grow plants in containers are required to use microirrigation or other water-saving systems.*
- *Aquifer Storage and Recovery (ASR) has been in use in the United States since 1968 and there are now numerous ASR facilities throughout the country.*
- *The Floridan aquifer is the primary aquifer system for the northern part of the state. In southern Florida, the Biscayne and Hawthorn aquifers supply most of the drinking water.*
- *The Biscayne aquifer covers 3,200 square miles and ranges in thickness from 100 feet along the western edge of Miami, Dade and Broward counties to 250 feet along the coastline.*
- *Ocean water treatment systems are used successfully worldwide in areas with very limited freshwater supplies.*
- *Despite human impacts, significant wetland systems remain in the LEC planning area.*

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